



Sequence Listing created in PatentIn.WorkFile

Individual Applicant

Street :
City : Edmond
State : Oklahoma
Country : USA
PostalCode :
PhoneNumber :
FaxNumber :
EmailAddress :
<110> LastName : Weigel
<110> FirstName : Paul
<110> MiddleInitial : H.
<110> Suffix : Ph.D.

Individual Applicant

Street :
City : Edmond
State : Oklahoma
Country : USA
PostalCode :
PhoneNumber :
FaxNumber :
EmailAddress :
<110> LastName : DeAngelis
<110> FirstName : Paul
<110> MiddleInitial :
<110> Suffix : Ph.D.

Individual Applicant

Street :
City : Edmond
State : Oklahoma
Country : USA
PostalCode :
PhoneNumber :
FaxNumber :
EmailAddress :
<110> LastName : Kumari
<110> FirstName : Kshama
<110> MiddleInitial :
<110> Suffix : Ph.D.

Application Project

<120> Title : Hyaluronan Synthase Gene and Uses Thereof
<130> AppFileReference : 3554.011
<140> CurrentAppNumber : US 09/469,200
<141> CurrentFilingDate : 1999-12-21

RECEIVED
DEC 18 2001
TECH CENTER 1600/2900

Sequence Listing created in PatentIn.WorkFile

Earlier Applications

<150> PriorAppNumber : US 09/178,851
<151> PriorFilingDate : 1998-10-26

Earlier Applications

<150> PriorAppNumber : US 60/064,435
<151> PriorFilingDate : 1997-10-31

Sequence

<213> OrganismName : Streptococcus equisimilis
<400> PreSequenceString :
atgagaacat taaaaaacct cataactgtt gtggccttta gtattttttg ggtactgttg 60
attacgtca atgtttatct ctttggtgct aaaggaagct tgtcaattta tggctttttg 120
ctgatagctt acctattagt caaaatgtcc ttatcctttt ttacaagcc atttaaggga 180
agggtgggc aatataagg tgcagccatt attccctctt ataacgaaga tgctgagtca 240
ttgctagaga ccttaaaaag tgttcagcag caaacctatc ccctagcaga aatttatgtt 300
gttgacgatg gaagtgtctg tgagacaggt attaagcgca ttgaagacta tgtgcgtgac 360
actggtgacc tatcaagcaa tgcattgtt catcggtcag agaaaaatca aggaaagcgt 420
catgcacagg cctgggcctt tgaaagatca gacgctgatg tctttttgac cgttgactca 480
gatacttata tctaccctga tgccttagag gattgtttaa aaacctttaa tgaccaact 540
gttttgctg cgacgggtca ccttaatgtc agaaatagac aaaccaatct ctaacacgc 600
ttgacagata ttcgctatga taatgctttt ggcgttgaac gagctgcca atccgttaca 660
ggtaatatcc ttgttgctc aggtccgctt agcgtttaca gacgcgaggt ggtgttcct 720
aacatagata gatacatcaa ccagaccttc ctgggtattc ctgtaagtat tggatgatgac 780
agggtcctga ccaactatgc aactgattta ggaaagactg ttatcaatc cactgctaaa 840
tgtattacag atgttctga caagatgtct acttacttga agcagcaaaa ccgctggaac 900
aagtcttct ttagagagtc cattatttct gtaagaaaa tcatgaacaa tccttttgta 960
gccctatgga ccatacttga ggtgtctatg ttatgatgc ttgtttatc tgggtggat 1020
ttctttagtag gcaatgtcag agaattttag tggctcaggg ttttagcctt tctggtgatt 1080
atcttcattg ttgccctgtg tcggaacatt cattacatgc ttaagcacc gctgtccttc 1140
ttgttatctc cgttttatgg ggtgctgcat ttgtttgtcc tacagccctt gaaattatat 1200
tctctttta ctattagaaa tgctgactgg ggaacacgta aaaaattatt ataa 1254

<212> Type : DNA

<211> Length : 1254

SequenceName : seHAS Gene

SequenceDescription :

Custom Codon

Sequence Name : seHAS Gene

Sequence

<213> OrganismName : Streptococcus Equisimilis
<400> PreSequenceString :
MRTLKNLITV VAFSIFWVLL IYVNVYLF GA KGSLSIYGFL LIAYLLVKMS LSFFYKPFKG 60
RAGQYKVA AI IPSYNEDAES LLETLSVQQ QTYPLAEIYV VDDGSADETG IKRIEDYVRD 120
TGDLSNVIV HRSEKNQGKR HAQAWAFERS DADVFLTVDS DTIYPPDALE ELLKTFNDPT 180

Sequence Listing created in PatentIn.WorkFile

VFAATGHLNV RNRQTNLLTR LTDIRYDNAF GVERAAQSVT GNILVCSGPL SVYRREVVVP 240
NIDRYINQTF LGIPVSIQDD RCLTNYATDL GKTVYQSTAK CITDVPDKMS TYLKQQNRWN 300
KSFFRESIIS VKKIMNNPFV ALWTILEVSM FMMLVYSVVD FFVGNVREFD WLRVLAFLVI 360
IFIVALCRNI HYMLKHPLSF LLSPFYGV LH LFVLQPLKLY SLFTIRNADW GTRKKLL 417

<212> Type : PRT

<211> Length : 417

SequenceName : seHAS Enzyme

SequenceDescription :

Sequence

<213> OrganismName : Synthetic

<400> PreSequenceString :

gctgatgaga caggtattaa gc 22

<212> Type : DNA

<211> Length : 22

SequenceName : primer: se1

SequenceDescription :

Custom Codon

Sequence Name : primer: se1

Sequence

<213> OrganismName : Synthetic

<400> PreSequenceString :

atcaaattct ctgacattgc 20

<212> Type : DNA

<211> Length : 20

SequenceName : primer: se2

SequenceDescription :

Custom Codon

Sequence Name : primer: se2

Sequence

<213> OrganismName : Synthetic

<400> PreSequenceString :

gactcagata cttatatcta 20

<212> Type : DNA

<211> Length : 20

SequenceName : primer: sesp1

SequenceDescription :

Custom Codon

Sequence Name : primer: sesp1

Sequence Listing created in PatentIn.WorkFile

Sequence

<213> OrganismName : Synthetic

<400> PreSequenceString :

ttttacgtg ttcccca 17

<212> Type : DNA

<211> Length : 17

SequenceName : primer: sesp2

SequenceDescription :

Custom Codon

Sequence Name : primer: sesp2

Sequence

<213> OrganismName : Paramecium bursaria chlorella virus

<400> PreSequenceString :

mgkniiimvs wytiitsnli avggaslila paitgyvlhw nialstiwgv saygifvfgf 60
flaqvlfsel nrklrkwis lrpkgwndvr laviiagyre dpymfqkcle svrdsdygnv 120
arlicvidgd edddmrmaav ykaiyndnik kpefvlc esd dkegeridsd fsrdicvlqp 180
hrgkreclyt gflakmdps vnavvlidsd tlekdaille vvyplacdpe iqavagecki 240
wntdtllsll vawryysafc versaqsffr tvqcvggplg aykidiikei kdpwisqrfl 300
gqkctygddr rltneilmrg kkvvftpfav gwsdsptnvf ryivqqtrws kswcreiwyt 360
lfaawkhgls giwlafecl yqityfflv yfsrlavead praqtatviv sttvalikcg 420
yfsfrakdir afyfvlytfv yffcmipari tammtlwdig wgrtggnkep svgrvalwa 480
kqyliaymww aavvgagvys ivhnmfmdwn slsyrfalvg icsyivfivi vlvvyftgki 540
ttwnftklqk eliedrvlyd attnaqsv 568

<212> Type : DNA

<211> Length : 568

SequenceName : PBCV Enzyme

SequenceDescription :

Custom Codon

Sequence Name : PBCV Enzyme

Sequence

<213> OrganismName : Paramecium bursaria chlorella virus

<400> PreSequenceString :

aagacttctt gaaagttaca atgggtaaaa atataatcat aatggtttcg tggtagacca 60
tcataacttc aaatctaate gcggttgag gaggctctct aatcttggt cggcaatta 120
ctgggtatgt tctacattgg aatattgctc tctcgacaat ctggggagta tcagcttatg 180
gtattttcgt ttttgggttt ttcttgcac aagttttatt ttcagaactg aacaggaaac 240
gtcttcgcaa gtggatttct ctacagaccta agggttggaa tgatgttcgt ttggctgtga 300
tcattgctgg atacgcgag gatccttata tgttcagaa gtgcctcgag tctgtacgtg 360
actctgatta tggcaacgtt gcccgctga tttgtgtgat tgacgggat gaggacgatg 420
atatgaggat ggctgccgtt tacaaggcga tctacaatga taatatcaag aagcccagat 480
ttgttctgtg tgagtcagac gacaaggaag gtgaacgcat cgactctgat ttctctcgcg 540
acatttgtgt ctccagcct catcgaggaa aacgggagtg tctttatact gggtttcaac 600
ttgcaaagat ggacccagat gtcaatgctg tcttctgat tgacagcgat accgttctcg 660

Sequence Listing created in PatentIn.WorkFile

```

agaaggatgc tattctggaa gttgtatacc cacttgcacg cgtatccgag atccaagccg  720
ttgcagggtga gtgtaagatt tggaacacag acactctttt gagtcttctc gtcgcttggc  780
gggtactattc tgcgttttgt gtggagagga gtgccagtc tttttcagg actgttcagt  840
gcgttggggg gccactgggt gcctacaaga ttgatatcat taaggagatt aaggaccct  900
ggatttccca gcgctttctt ggtcagaagt gtacttacgg tgacgaccgc cggctaacca  960
acgagatctt gatgcgtggt aaaaagggtg tgttactcc atttgcgtt ggttggctg 1020
acagtccgac caatgtgtt cggtagatcg ttcagcagac ccgctggagt aagtcgtggt 1080
gccgcgaaat ttggtacacc ctctcgccg cgtggaagca cggttgtct ggaattggc 1140
tggcctttga atgtttgtat caaattacat acttcttct cgtgatttac ctctttctc 1200
gcctagccgt tgaggccgac cctcgccccc agacagccac ggtgattgtg agcaccacgg 1260
ttgcattgat taagtgtggg tatttttcat tccgagccaa ggatattcgg gcgttttact 1320
ttgtgcttta tacattgtt tacttttct gtatgattcc ggccaggatt actgcaatga 1380
tgacgctttg ggacattggc tgggttactc gcggtggaaa cgagaagcct tccgttggca 1440
cccgggtcgc tctgtgggca aagcaatata tcatgcata tatgtgggtg gccgcggtg 1500
ttggcgctgg agtttacagc atcgccata actggatgtt cgattggaat tctcttctt 1560
atcgtttgc tttggttggg attgttctt acattgttt tattgtatt gtgctgggtg 1620
tttatttcac cggcaaaatt acgacttga atttcacgaa gcttcagaag gagctaatac 1680
aggatcgct tctgtacgat gcaactacca atgctcagtc tgtgtgatt ttctgcaag 1740

```

<212> Type : DNA

<211> Length : 1740

SequenceName : PBCV Gene

SequenceDescription :

Custom Codon

Sequence Name : PBCV Gene

Sequence

<213> OrganismName : Pastuerella Multocida

<400> PreSequenceString :

```

atttttaag gacagaaaat gaatacatta tcacaagcaa taaaagcata taacagcaat  60
gactatcaat tagcactcaa attatttgaa aagtcggcgg aaatctatgg acggaaaatt 120
gttgaatttc aaattaccaa atgcaaagaa aaactctcag cacatccttc tgtaattca 180
gcacatcttt ctgtaataa agaagaaaaa gtcaatgtt gcgtagtcc gtagatatt 240
gcaacacaac tgttacttcc caacgtaaaa aaattagtag tttctgactc ggaaaaaac 300
acgttaaaaa ataatggaa attgctcact gagaagaaat ctgaaaatgc ggaggtaaga 360
gcggtcgccc ttgtacaaa agattttccc aaagatctgg ttttagcgcc ttacctgat 420
catgttaatg attttcatg gtacaaaaag cgaaagaaaa gacttggcat aaaacctgaa 480
catcaacatg ttggtcttcc tattatcgtt acaacattca atcgaccagc aattttatcg 540
attacattag cctgtttagt aaaccaaaaa acacattacc cgtttgaagt tatcgtgaca 600
gatgatggta gtcaggaaga tctatcaccg atcattcgcc aatatgaaa taaattggat 660
attcgctacg tcagacaaaa agataacggt ttcaagcca gtccgctcg gaatatggga 720
ttacgcttag caaaatatga ctttattggc ttactcgact gtgatatggc gccaaatcca 780
ttatgggttc attctatgt tgcagagcta ttagaagatg atgatttaac aatcattggt 840
ccaagaaaat acatcgatac acaacatatt gacccaaaag acttcttaaa taacgcgagt 900
ttgcttgaat cattaccaga agtgaaaacc aataatagtg ttgccgcaaa aggggaagga 960
acagtttctc tggattggcg cttagaaca ttcgaaaaaa cagaaaatct ccgcttatcc 1020
gattcgctt tccgttttt tgcggcggtt aatgttgctt tcgctaaaa atggctaaat 1080
aaatccggtt tctttgatga ggaatttaac cactggggtg gagaagatgt ggaatttga 1140
tatcgcttat tccgttacgg tagtttctt aaaactattg atggcattat ggcctacat 1200

```

Sequence Listing created in PatentIn.WorkFile

caagagccac caggtaaaga aatgaaacc gatcgtgaag cgggaaaaa tattacgctc 1260
gatattatga gagaaaaggt cccttatatc tatagaaaac tttaccaat agaagattcg 1320
catatcaata gaggaccttt agtttcaatt tatatcccag cttataactg tgcaaaactat 1380
attcaacgtt gcgtagatag tgcactgaat cagactgttg ttgatctcga ggtttgtatt 1440
tgaacgatg gttcaacaga taatacctta gaagtgatca ataagcttta tggtaataat 1500
cctaggggtac gcatcatgtc taaaccaaat ggcggaatag cctcagcatc aatgcagcc 1560
gtttcttttg ctaaaggtta ttacattggg cagtttagatt cagatgatta tcttgagcct 1620
gatgcagttg aactgtgttt aaaagaattt taaaagata aaacgctagc ttgtgttat 1680
accactaata gaaacgcaa tccggatggg agcttaatcg ctaattggta caattggcca 1740
gaattttcac gagaaaaact cacaacggct atgattgctc accactttag aatgttcacg 1800
attagagctt ggcatttaac tgatggattc aatgaaaaa tgaataatgc cgtagactat 1860
gacatgttcc tcaaacctag tgaagtggga aaatttaaac atcttaataa aatctgctat 1920
aaccgtgtat tacatgggtga taacacatca attaagaaac ttggcattca aaagaaaaac 1980
cattttgttg tagtcaatca gtcattaaat agacaaggca taactatta taattatgac 2040
gaatttgatg atttagatga aagtagaaag tatattttca ataaaaccgc tgaatatcaa 2100
gaagagattg atatcttaaa agatattaaa atcatccaga ataaagatgc caaatcgca 2160
gtcagtattt ttatcccaa tacattaaac ggcttagtga aaaactaaa caatattatt 2220
gaatataata aaaatatatt cgtattgtt ctacatgttg ataagaatca tcttacacca 2280
gatacaaaa aagaaatact agccttctat cataaacatc aagtgaatat ttactaaat 2340
aatgatatct catattacac gagtaataga ttaataaaaa ctgaggcgca ttaagtaat 2400
attaataaat taagtcagtt aaatctaaat tgaataaca tcattttga taatcatgac 2460
agcctattcg taaaaaatga cagctatgct tatatgaaa aatatgatgt cggcatgaat 2520
ttctcagcat taacacatga ttggatcgag aaatcaatg cgcacccacc atttaaaaag 2580
ctcattaaaa cttattttaa tgacaatgac ttaaaaagta tgaatgtgaa aggggcatca 2640
caaggtatgt ttatgacgta tgcgctagcg catgagcttc tgacgattat taaagaagtc 2700
atcacatctt gccagtcaat tgatagtgtg ccagaatata aactgagga tatttggttc 2760
caatttgac ttttaatctt agaaaagaaa accggccatg tatttaataa aacatcgacc 2820
ctgacttata tgccttggga acgaaaatta caatggacaa atgaacaaat tgaaagtgca 2880
aaaagaggag aaaatatacc tgttaacaag ttcattatta atagtataac tctataa 2937

<212> Type : DNA

<211> Length : 2937

SequenceName : PmHAS Gene

SequenceDescription :

Custom Codon

Sequence Name : PmHAS Gene

Sequence

<213> OrganismName : Pastuerella Multocida

<400> PreSequenceString :

MNTLSQAIKA YNSNDYQLAL KLFESAEIY GRKIVEFQIT KCCEKLSAHP SVNSAHL SVN 60
KEEKVNVCDs PLDIATQLLL SNVKKLVLSd SEKNTLKNKW KLLTEKKSEN AEVRAVALVP 120
KDFPKDLVLA PLPDHVNDFT WYKKRKKRLG IKPEHQHVGL SIIVTTFNRP AILSITLACL 180
VNQKTHYPFE VIVTDDGSQE DLSPiIRQYE NKLDiRYVRQ KDNGFQASAA RNMGLRLAKY 240
DFIGLLDCDM APNPLWVHSY VAELEDDDL TIIGPRKYID TQHIDPKDFL NNASLLES LP 300
EVKTNNsvAA KEGTVSLDW RLEQFEKTE N LRLSDSPFRF FAAGNVAFaK KWLNKSGFFD 360
EEFNHWGGED VEFgyRLFRY GSFFKTIDGI MAYHQEPpGK ENETDREAGK NITLDIMREK 420
VPYiYRKLLP IEDSHiNRVP LVSiYIPAYN CANYiQRCDV SALNQTvVDL EVCiCNDGST 480
DNTLEVINKL YGNnPRVRIM SKPNGGiASA SNAaVSFAKG YyIGQLDSDd YLEPDaVELC 540

Sequence Listing created in PatentIn.WorkFile

LKEFLKDKTL ACVYTTNRNV NPDGSLIANG YNWPEFSREK LTTAMIAHHF RMFTIRAWHL 600
TDGFNEKIEN AVDYDMFLKL SEVGKFKHLN KICYNRVLHG DNTSIKKLGI QKKNHFVVVN 660
QSLNRQGITY YNYDEFDDLD ESRKYIFNKT AEYQEEIDIL KDIKIIQNKD AKIAVSIFYP 720
NTLNGLVKKL NNII EYNKNI FVIVLHVDKN HLTPDIKKEI LAFYHKKHQN ILLNNDISYY 780
TSNRLIKTEA HLSNINKLSQ LNLNCEYIIF DNHDSL FVKN DSYAYMKKYD VGMNFSALTH 840
DWIEKINAH PFKKLIKTYF NDNDLKSMNV KGASQGMFMT YALAHLLTI IKEVITSCQS 900
IDSVPEYNTE DIWFQFALLI LEKKTGHVFN KTSTLT YMPW ERKLQWTNEQ IESAKRGENI 960
PVNKFII NSI TL 972

<212> Type : PRT

<211> Length : 972

SequenceName : PmHAS Enzyme

SequenceDescription :